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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/583,275	07/02/2007	Aki Honda	0760-0356PUS1	2612
2292	7590	11/15/2011	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747				SRIVASTAVA, KAILASH C
ART UNIT		PAPER NUMBER		
1657				
NOTIFICATION DATE			DELIVERY MODE	
11/15/2011			ELECTRONIC	

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary	Application No.	Applicant(s)	
	10/583,275	HONDA ET AL.	
	Examiner	Art Unit	
	KAILASH C. SRIVASTAVA	1657	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 21 August 2011.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.
- 4) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 5) Claim(s) 27-52 is/are pending in the application.
 - 5a) Of the above claim(s) 34-42 and 46-51 is/are withdrawn from consideration.
- 6) Claim(s) _____ is/are allowed.
- 7) Claim(s) 27-33, 43-45 and 52 is/are rejected.
- 8) Claim(s) _____ is/are objected to.
- 9) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 10) The specification is objected to by the Examiner.
- 11) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 12) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ . |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ . | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| | 6) <input type="checkbox"/> Other: _____ . |

DETAILED ACTION

Response and amendments filed 17 August 2011 to Office Action with Non-final rejection mailed 17 February 2011 are acknowledged and entered.

Also acknowledged and entered is the amendment to specification to insert the sequence listing filed 17 August 2011 in **accordance with 37 C.F. R. §§ 1.821-1.825**. Said sequence List was accepted on 21 August 2011.

Claims Status

According to the amendment filed 17 August 2011, following is the current status of Claims in the instant application:

- Claim 52 has currently been added;
- Claims 1-26 currently remain cancelled;
- Claims 27-52 are currently pending;
- Claims 34-42 and 46-51 currently remain withdrawn;
- Claims 27, 30-31 and 43-44 have currently been amended; and
- Claims 27-33, 43-45 and 52 are currently presented for examination and are examined on merits.

Withdrawn Objections and Rejections

Considering the amendments and remarks filed 17 August 2011 in response to the Office Action with Non-final rejection mailed 17 February 2011, Examiner herewith withdraws the following objections and rejections in said Office Action:

- objection to Claims 43-44 for lack of clarification;

- objection to specification for not perfecting the application priority data and sequence compliance; and
- rejection of Claims 27-33 and 43-45 under 35 U.S.C. §112, first paragraph for lack of enablement.

Informals

The Art Unit Location for your instant application (i.e., 10/583,275) under prosecution at the United States Patent and Trademark Office (i.e., USPTO) has been changed to Art Unit 1657. To aid in correlating any papers for this application (i.e., 10/583,275), all further correspondence regarding the instant application (i.e., 10/583,275) should be directed to Examiner Kailash C. Srivastava in Art Unit 1657.

The instant application currently contains withdrawn Claims 34-42 and 46-51 drawn to a non-elected invention without traverse in the reply filed 29 September 2010. A complete reply to the instant final rejection must include cancellation of said nonelected claims or other appropriate action (See, 37 C.F.R. §1.144 and M.P.E.P. §821.01).

Claims objected

The following objections are necessitated because of the amendment to Claims 31 and 43-44.

Currently amended Claims 31 and 44 are objected for following reasons:

- at Claim 31, line 2, the comma before the word, “used” is unnecessary, however, at Claim 31, Line 3 placing a “comma” before the word, “or” would be idiomatically correct. Appropriate correction is required.

- ♦ the difference between currently presented amended Claims 43 and 44 is the recitation, “and/or at least one amino acid” at Claim 44, Line 3, which may also be construed as lacking antecedence because Claim 44 depends from Claim 43 and at Claim 43 bridging Lines 2-3, the recitation is “at least one amino acid”. The Examiner is interpreting the limitations in Claim 44 as “at least one amino acid”. Appropriate correction/clarification is required.

Claim Rejections – 35 U.S.C. § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 27-28, 30 and 32-33 remain rejected under 35 U.S.C. § 102(b) as anticipated by Pirzad (GB 2351560 A1, Item BA, Applicants' IDS filed 03/14/2008).

In response to above-cited rejection made in the Office action mailed 17 February 2011, applicants argue that said Claims are not anticipated by the cited prior art because Pirzad et al., teach a pretreatment step which is not required in the as amended Claim 27 (Response filed 17 August 2011, Page 12, Lines 27-31; Page 13, Lines 3-18 and 24-25).

Examiner respectfully submits that Pirzad et al., indeed teach the limitation in the amended Claim 27 because in another embodiment, Pirzad et al., teach that dust sample was exposed to an immobilized protease substrate comprised of a peptide attached to a chromogenic substance, wherein post-reaction, the measured colored intensity of said liberated chromogenic substance is “proportional to the allergen activity” (Page 6, Line 26 to Page 7, Line 10).

Applicants' arguments filed 17 August 2011 regarding the rejection to Claims 27-28, 30 and 32-33 as anticipated by Pirzad (GB 2351560 A1, Item BA, Applicants' IDS filed 03/14/2008) in the Office Action with Non-final rejection mailed 17 February 2011 have been fully and carefully considered but are not persuasive for the reasons of record at pages 7-8, items

14-15 in the Office Action mailed 17 February 2011 and those discussed *supra*. Accordingly, said anticipatory rejection of Claims 27-28, 30 and 32-33 is maintained and is adhered to.

Claim Rejections Under 35 U.S.C. § 103(a)

The following is a quotation of 35 U.S.C. §103(a) which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. § 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR §1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. § 103(c) and potential 35 U.S.C. § 102(f) or (g) prior art under 35 U.S.C. § 103(a).

- A. Claim 29, currently amended Claims 43-44 and newly presented Claim 52 are rejected under 35 U.S.C. §103(a) as obvious over combined teachings from Pirzad (GB 2351560 A1, Item BA, Applicants' IDS filed 03/14/2008) in view of Berrens (U.S. Patent 5,667,979A, Item AA, Applicants' IDS filed 16 June 2006).
- B. Claims 28 and 31 remain rejected under 35 U.S.C. §103 (a) as obvious over combined teachings from Pirzad (GB 2351560 A1, Item BA, Applicants' IDS filed 03/14/2008) in view of Berrens (U.S. Patent 5,667,979A, Item AA, Applicants' IDS filed 16 June 2006) as applied to Claims 29 and 43-44 above and further in view of Ino et al., (1989. Characterization of the Proteases in the Crude Mite Extract. International Archives of Allergy and Applied Immunology, Volume 89, Pages 321-326).
- C . Claim 45 remains rejected under 35 U.S.C. §103 (a) as obvious over combined teachings from Pirzad (GB 2351560 A1, Item BA, Applicants' IDS filed 03/14/2008) in view of Berrens (U.S. Patent 5,667,979A, Item AA, Applicants' IDS filed 16 June 2006) as applied to Claims 29 and 43-44 above and further in view of Bissell et al (U. S. Patent 6,235,493 B1).

In response to obviousness rejections to Claims 28-29, 31, 43-45 and newly presented Claim 52 under 35 U.S.C. § 103 (a) cited *supra* in the order presented in each of rejection statements in items A, B, and C *supra* and in Office Action mailed 17 February 2011, Applicants argue that said references, alone or in combination do not teach the instantly claimed invention and therefore do not render the instantly claimed invention unpatentable/obvious. Applicants argue that because:

- i. secondary references recited in each of rejection statements in items A, B, and C also do not teach said limitation in amended Claim 27, the references do not render the instantly claimed invention in Claims 28-29, 31, 43-45 and newly presented Claim 52 obvious Pirzad et al., teach a pretreatment step which is not required in the as amended Claim 27 (See, Remarks filed 17 August 2011, Page13, Lines 27-31; page 14, Lines 3-24; Page 15, Lines 9-22 and Page 18, Lines 6-15);
- ii. the method of directly contacting an environmental sample with a protease substrate to obtain the protease activity is an unexpected result (Remarks filed 17 August 2011, page 14, Lines 20-24 and Page 15, Lines 9-12) ;
- iii. Applicants, while admitting on record that Berrens discloses the use of a chromogenic substrate (Remarks filed 17 August 2011, Page 15, Lines 17-18), argue said material is not colored;
- iv. Applicants also argue that Claim 43 requires a “color change”, not color production and Berrens teaches production of yellow color resulting from combining the sample and the protease substrate. According to Applicants, color change is more readily discernible than coloring (colorless compound is colored (Remarks filed 17 August 2011, Page 15, Lines 29-31; Page 16, Lines 10-11);
- v. applicants also argue that even though compounds comprising, e.g., cresyl violet bound to the peptide were known at the time of instant invention, applying said

material for assaying protease was not known in the art (Remarks filed 17 August 2011, Page 16, Lines 12-15).

Applicants are absolutely correct in arguing that each one of the references cited *supra*; **individually** do not make obvious the instantly claimed invention in Claims 28-29, 31, 43-45 and newly presented Claim 52. The rejection, however, is an obviousness rejection on the basis of combined teachings of the references cited. Furthermore, the claimed invention, given broadest possible interpretation is interpreted as an assay method to assay protease with the addition of a chromogenic protease substrate, wherein the enzyme activity is measured as a function of change in the intensity of any resulting color. The color intensity is measured by comparison with at least one reference color. Furthermore, the protease substrate comprises at least one amino group, peptides or oligopeptide; wherein the pigment or chromogen attached to the amino group of amino acid, peptides or oligopeptide is one among: cresyl violet, Safranin O, or methylene violet 3RAX.

Regarding Applicants' arguments referenced in items i-ii above, as stated *supra*, Examiner respectfully submits that Pirzad et al., indeed teach the limitation in the amended Claim 27 because in another embodiment, Pirzad et al., teach that dust sample was exposed to an immobilized protease substrate comprised of a peptide attached to a chromogenic substance, wherein post-reaction, the measured colored intensity of said liberated chromogenic substance is "proportional to the allergen activity" (Page 6, Line 26 to Page 7, Line 10).

Regarding Applicants' arguments referenced in item ii above, Pirzad teaches assaying protease present in a dust sample and correlation of measured color intensity of the chromogen released as proportional to the allergen activity (Page 6, Line 26 to Page 7, Line 10). Accordingly, Applicants instantly Claimed method and result obtained thereof were not demonstrated as surprising or unexpected to those of skill in the relevant art. Thus, there is no unexpected result in Applicants' method.

Regarding Applicants' arguments referenced in items iii-iv above, Applicants recite that Barrens teaches producing a yellow color as a result of putting the protease substrate and sample

together. Thus, Berrens teaches a change in color (from colorless to yellow) which again according to Applicants' own arguments is a change in color and is more readily discernible than coloring (colorless compound is colored, Remarks filed 17 August 2011, Page 15, Lines 29-31; Page 16, Lines 10-11). Therefore, Claim 43 limitations are taught in Berrens' teachings. Furthermore, the argued rejection is an obviousness rejection and Bissell et al., teach enzyme substrate comprising cresyl violet substituted to an amino acid (Title of the Bissell et al., reference) and cleavage of cresyl violet to produce a color change as a result of the enzyme reaction (Bissell et al., Abstract, Lines 22-25) which is then compared with a scale to give the protease activity (Bissell et al., Abstract items d-e).

Because both the Berrens reference and Bissell et al., reference teach methods of assaying proteases or enzymes, it would have been obvious to one skilled in the art to substitute one method (i.e., Berrens et al applying a colorless substrate to obtain a color) for the other (i.e., Bissell et al. to use enzyme substrate comprising cresyl violet substituted to an amino acid and cleavage of cresyl violet to produce a color change) to achieve the predictable result of assaying the protease in the sample.

Thus, combination of teachings from Pirzad, Berrens and Bissell et al., teaches the limitations in Claims 43-45.

Regarding Applicants' arguments referenced in item v above, Bissell et al., teach enzyme substrate comprising cresyl violet substituted to an amino acid (Title of the Bissell et al., reference) and cleavage of cresyl violet to produce a color change as a result of the enzyme reaction (Bissell et al., Abstract, Lines 22-25). Thus, applicants' argument that their employing pigmented compounds e.g., cresyl violet substituted enzyme substrate, especially for protease was art-unknown prior to the claimed invention in Claims 27-29, 31, 43-45 and newly presented Claim 52. Thus, Applicants' assertion of "unexpected results" is not persuasive.

Additionally, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather the test is what

the combined teachings of the references would have suggested to those of ordinary skill in the art at the time the invention was made. See *In re Keller* 642. F. 2d 413, 208 USPQ 871 (CCPA 1981). Note that although each of the Examiner-cited references by themselves may not teach every component in the same order or manner as claimed in the claims under prosecution in the instant application, these references are not relied upon exclusively but in combination. Furthermore, the 35 U.S.C. §103 statute does not require that the prior art identically disclose or describe Applicants' invention but rather that no patent should be obtained if the subject matter as a whole would have been obvious to persons having ordinary skill in this art at the time the invention was made. In this case, given the teachings from each one of Pirzad, Berrens, Ino et al., and Bissell et al., the claimed invention would have been obvious to a person of ordinary skill at the time the claimed invention was made.

In response to applicants' argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, those reasons are cited at pages 4-5, item 15 of the Office Action mailed 13 July 2006 and for additional reasons as discussed *supra*. Furthermore, a rejection under 35 U.S.C. § 103 (a) based upon the combination of references is not deficient solely because the references are combined based upon a reason or technical consideration which is different from that which resulted in the claimed invention (*Ex parte Raychem Corp*, 17 U.S.P.Q. 2d 1417). Furthermore, as explained *supra*, the motivation to combine the teachings from each one of Pirzad, Berrens, Ino et al., and Bissell et al., is the technique to measure protease activity in a sample and correlating said activity with the presence of allergen in said sample. The methods of protease assay in each of Pirzad, Berrens, Ino et al., and Bissell et al., references is substitution of a technique (i.e., measuring the color change in the reaction mixture) for an art-recognized equivalent.

In response to applicants' arguments against the references individually, one cannot show non-obviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Applicants' arguments cited *supra* have been fully and carefully considered, but are not persuasive for the reasons of record at Pages 9-14, items 16-20 in the Office Action with Non-final rejection mailed 17 February 2011 and those discussed *supra*. Accordingly, said obviousness rejection of Claims 27-28, 30 and 32-33 is maintained and is adhered to.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

For the aforementioned reasons, no claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Kailash C. Srivastava whose telephone number is (571) 272-0923. The examiner can normally be reached on Monday to Thursday from 7:30 A.M. to 6:00 P.M. (Eastern Standard or Daylight Savings Time).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jon Weber can be reached at (571)-272-0925 Monday through Thursday 7:30 A.M. to 6:00 P.M. The fax phone number for the organization where this application or proceeding is assigned is (571)-273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding may be obtained from the Patent Application Information Retrieval (i.e., PAIR) system. Status information for the published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (i.e., EBC) at: (866)-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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